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From-HENKEL CORP PATENT DEPT

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TO:

FROM:

Name: Examiner: John M. Cooney, Jr.

Name: Daniel S. Ortiz

Location: USPTO Art Unit: 1711

Location: 2500 Renaissance Blvd
Gulph Mills, PA

Fax No.: 703-305-3599

Date: September 29, 1999

NUMBER OF PAGES 7 INCLUDING THIS COVER PAGE.

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AFTER FINAL

Re: Application of KLUTH, et al.
Serial No. 08/702,625
Filed: August 23, 1996

Docket No. H 1215 PCT/US

- REQUEST FOR RECONSIDERATION - (6 pages)

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PATENT
Docket No. H 1215 PCT/US
Response under 37 CFR 1.116
Expedited Procedure
Examining Group 1711

#23
10/6/99
EC
Official

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Application of KLUTH, et al.

Serial No. 08/702,625 Examiner: J. Cooney
Filed: August 23, 1996 Art Unit: 1711
TITLE: FOAM PLASTIC FROM DISPOSABLE PRESSURIZED CONTAINERS

CERTIFICATE OF FACSIMILE TRANSMISSION PER 37 C.F.R. § 1.8

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REQUEST FOR RECONSIDERATION

Box AF
Assistant Commissioner for Patents
Washington, DC 20231

Sir:

In response to the Official Action of August 12, 1999, applicants respectfully request that the final rejection be reconsidered in light of the following discussion.

Before discussing the rejection over the prior art, applicants deem it prudent to set forth what they consider to be their invention. The invention is a system for the production of plastic foam comprising a disposable pressurized container containing a composition comprising at least one polyisocyanate or isocyanate prepolymer having an NCO content of from about 8 to 32% by weight based on the prepolymer, at least one catalyst for the reaction of an isocyanate group with an OH group, at least one blowing agent and at least one foam stabilizer. The

system is characterized in that within 24 hours after application of the plastic foam from the disposable

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pressurized container, the residue left in the pressurized container has a diisocyanate monomer content of less than 5% by weight, based on the residual contents of the emptied container. The low content of diisocyanate monomer residue in the emptied container permits the emptied container to be disposed of as normal waste rather than requiring special disposal as a hazardous material. Applicants respectfully submit that the present invention is neither taught nor suggested by the prior art cited by the Examiner.

Claims 15-36 and 40-68 stand rejected under 35 U.S.C. 103(a) as unpatentable over Pauls (U.S. 4,263,412) in view of CA-2,084,698 (hereinafter noted as Canada) and Minato et al. (US 5,086,175). Applicants respectfully submit that Pauls, Canada and Minato et al., whether considered alone or in combination, neither teach nor suggest the present invention.

Pauls is related to the prior art disclosed by applicants. Pauls discloses a container for dispensing one component polyurethane foam from a container in which the foaming components are separated by a flexible membrane from the propelling gas. The device has the advantage that only small amounts of the foaming agent are required. The small amount of foaming agent permits selection from a broader range of foaming agents since certain useful foaming agents are soluble to a limited extent in the one component systems. Pauls represents the prior art cited by applicants.

Pauls teaches that the components of the mixture are introduced into the container and reacted therein (see examples 1 to 27, column 7 lines 54, 55 and column 8 lines 25 29). A less preferred method is to react the components in a

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kettle and pack the reaction mixture from the kettle into the container. As is known in the prior art, since the ratio of NCO groups to OH groups is preferably from 4 to 8, the amount of unreacted diisocyanate monomer in the contents of the container is high.

The large amount of unreacted diisocyanate monomer in the contents of the Pauls container presents no problem. At column 7, lines 61-65, Pauls teaches:

"The inner container (1), the special shape of which permits virtually complete expulsion of the foamable prepolymer mixture containing isocyanate groups, consists either of aluminum or a resilient plastic, e.g., high pressure polyethelene." (Emphasis added by applicants.)

Applicants submit that since the Pauls device permits virtually complete expulsion of the foamable prepolymer mixture containing diisocyanate monomer from the container, there is no incentive to reduce the content of diisocyanate monomer in the contents of the container. Operation of the Pauls container is similar to the operation of the container of Plaschka, et al., (US 4,508,244) of record, in that both containers are virtually completely emptied of the contents which contain the diisocyanate monomer. Since Pauls teaches that the preferred method of filling the container is by reacting the components in the container which method produces a foaming composition with a high concentration of diisocyanate monomer, applicants submit that Pauls is not concerned since the container is virtually emptied due to its unique design and little monomer remains in the container.

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The deficiencies in the teaching of Pauls are not cured by combination with Canada or Minato et al. Canada and Minato et al. disclose a composition having a low content of diisocyanate monomers which is useful for lacquers and adhesives. As set forth in the references, Canada and Minato et al. teach that a prepolymer is prepared using an excess of the diisocyanate monomer and the excess unreacted diisocyanate monomer is removed from the reaction mixture by a distillation process. The amount of unreacted diisocyanate monomer in the composition can be less than 0.1% by weight of the composition (see Canada). However, the composition with the low content of the unreacted diisocyanate is expensive to produce. One skilled in the art would have no incentive to include such an expensive material in the formulation used in the container of Pauls. The Pauls container permits virtually complete expulsion of the foamable prepolymer mixture and therefore the empty container does not present a disposal problem.

Nowhere in the teachings of Canada and Minato et al. is there any suggestion that the polyisocyanate would be useful in a foaming application. The Minato et al. composition was developed to be soluble in nonpolar solvents so that effective lacquer formulations could be made. The composition is particularly useful in a two package coating system. Canada discloses solid polyisocyanates which are useful in lacquer formulations. The polyisocyanates of Canada are generally dissolved in a solvent. Since it is preferred that the system of the present invention does not contain a solvent, Applicants submit that Canada neither teaches nor suggests the present invention.

Applicants submit that as disclosed in Canada and Minato

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et al., it was known in the art to prepare polyisocyanate containing compositions with a low content of diisocyanate monomer. However, these compositions were known for use in lacquers or adhesives. Lacquers and adhesives are relatively expensive materials which can afford the extra process steps in preparing the low diisocyanate monomer material. However, there would be no incentive for one skilled in the art to include the expensive low diisocyanate content material in a system for forming a foamed resin comprising a container from which virtually all of the contents are expelled, to reduce the expense of disposing of the container.

Applicants respectfully submit that the rejection over the combination of Pauls in view of Canada and Minato et al. is improper. To formulate a rejection over a combination of references there must be some suggestion in the references to make the combination. As pointed out above, the only suggestion to combine the teachings of the references is in the present application. Clearly, one skilled in the art would not be led to include a low diisocyanate monomer content prepolymer in the container of Pauls, since the single component foaming mixture is virtually completely expelled from the container and the empty container would not present a disposal problem. Applicants therefore submit that the rejection is improper and request that it be withdrawn.

Applicants have provided a novel and unobvious system for providing a plastic foam. The system having a major unrecognized advantage in disposal of the empty container. Applicants submit that the prior art cited by the examiner provides no teaching or suggestion of the system of the invention. Pauls teaches the known system for forming foams;

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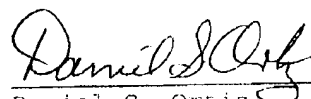
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Canada and Minato et al. disclose low monomer content materials used for coatings and adhesives. There is no incentive to combine the teachings of the references.

In view of the above discussion, applicants respectfully submit that the present invention is neither taught nor suggested by the combination of Pauls, Canada and Minato et al. Applicants respectfully request reconsideration of the rejection and allowance of the claims.

Respectfully submitted,



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